

THAT WHICH IS CLAIMED IS:

1. A method of identifying a human subject having increased sensitivity to warfarin, comprising detecting in the subject the presence of a single nucleotide polymorphism in the VKOR gene, wherein the single nucleotide polymorphism is correlated with increased sensitivity to warfarin, thereby identifying the subject having increased sensitivity to warfarin.

2. The method of claim 1, wherein the single nucleotide polymorphism in the VKOR gene is a G→C alteration at nucleotide 2581 of the nucleotide sequence of SEQ ID NO:11.

3. A method of identifying a human subject having increased sensitivity to warfarin, comprising:

a) correlating the presence of a single nucleotide polymorphism in the VKOR gene with increased sensitivity to warfarin; and

b) detecting the single nucleotide polymorphism of step (a) in the subject, thereby identifying a subject having increased sensitivity to warfarin.

4. A method of identifying a single nucleotide polymorphism in the VKOR gene correlated with increased sensitivity to warfarin, comprising:

a) identifying a subject having increased sensitivity to warfarin;

b) detecting in the subject the presence of a single nucleotide polymorphism in the VKOR gene; and

c) correlating the presence of the single nucleotide polymorphism of step (b) with the increased sensitivity to warfarin in the subject, thereby identifying a single nucleotide polymorphism in the VKOR gene correlated with increased sensitivity to warfarin.

5. A method of correlating a single nucleotide polymorphism in the VKOR gene of a subject with increased sensitivity to warfarin, comprising:

a) identifying a subject having increased sensitivity to warfarin;

- b) determining the nucleotide sequence of the VKOR gene of the subject of (a);
- c) comparing the nucleotide sequence of step (b) with the wild type nucleotide sequence of the VKOR gene;
- d) detecting a single nucleotide polymorphism in the nucleotide sequence of (b); and
- e) correlating the single nucleotide polymorphism of (d) with increased sensitivity to warfarin in the subject of (a).

6. A method of identifying a human subject having decreased sensitivity to warfarin, comprising detecting in the subject the presence of a single nucleotide polymorphism in the VKOR gene, wherein the single nucleotide polymorphism is correlated with decreased sensitivity to warfarin, thereby identifying the subject having decreased sensitivity to warfarin.

7. The method of claim 6, wherein the single nucleotide polymorphism in the VKOR gene is a T→C alteration at nucleotide 3294 of the nucleotide sequence of SEQ ID NO:11.

8. The method of claim 6, wherein the single nucleotide polymorphism in the VKOR gene is a G→A alteration at nucleotide 4769 of the nucleotide sequence of SEQ ID NO:11.

9. A method of identifying a human subject having decreased sensitivity to warfarin, comprising:

- a) correlating the presence of a single nucleotide polymorphism in the VKOR gene with decreased sensitivity to warfarin; and
- b) detecting the single nucleotide polymorphism of step (a) in the subject, thereby identifying a subject having decreased sensitivity to warfarin.

10. A method of identifying a single nucleotide polymorphism in the VKOR gene correlated with decreased sensitivity to warfarin, comprising:

- a) identifying a subject having decreased sensitivity to warfarin;

b) detecting in the subject the presence of a single nucleotide polymorphism in the VKOR gene; and

c) correlating the presence of the single nucleotide polymorphism of step (b) with the decreased sensitivity to warfarin in the subject, thereby identifying a single nucleotide polymorphism in the VKOR gene correlated with decreased sensitivity to warfarin.

11. A method of correlating a single nucleotide polymorphism in the VKOR gene of a subject with decreased sensitivity to warfarin, comprising:

a) identifying a subject having decreased sensitivity to warfarin;

b) determining the nucleotide sequence of the VKOR gene of the subject of (a);

c) comparing the nucleotide sequence of step (b) with the wild type nucleotide sequence of the VKOR gene;

d) detecting a single nucleotide polymorphism in the nucleotide sequence of (b); and

e) correlating the single nucleotide polymorphism of (d) with decreased sensitivity to warfarin in the subject of (a).

12. In a method of making a vitamin K dependent protein which comprises

a) culturing a host cell which expresses a nucleic acid encoding a vitamin K dependent protein in the presence of vitamin K and produces a vitamin K dependent protein, and

b) harvesting said vitamin K dependent protein from the culture, said host cell containing and expressing a heterologous nucleic acid encoding vitamin K dependent carboxylase, the improvement comprising:

employing as said host cell a host cell further containing and expressing a heterologous nucleic acid encoding vitamin K epoxide reductase (VKOR).

13. The method of claim 12, wherein said vitamin K dependent protein is selected from the group consisting of Factor VII, Factor IX, Factor X, Protein C, Protein S, and prothrombin.

14. The method of claim 12, wherein said host cell is a plant cell.

15. The method of claim 12, wherein said host cell is an insect cell.

16. The method of claim 12, wherein said vitamin K-dependent carboxylase is bovine vitamin K dependent carboxylase.